09/814536

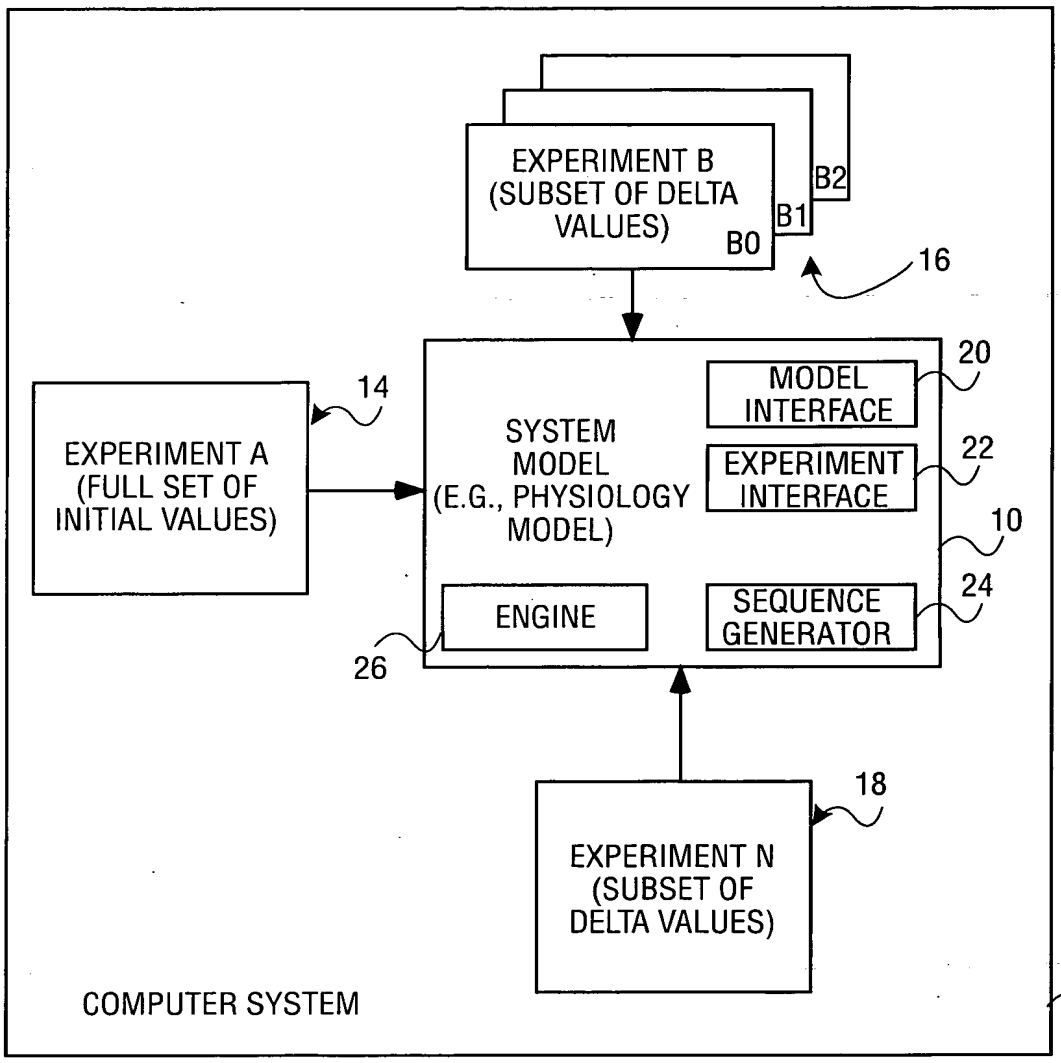


FIG. 1

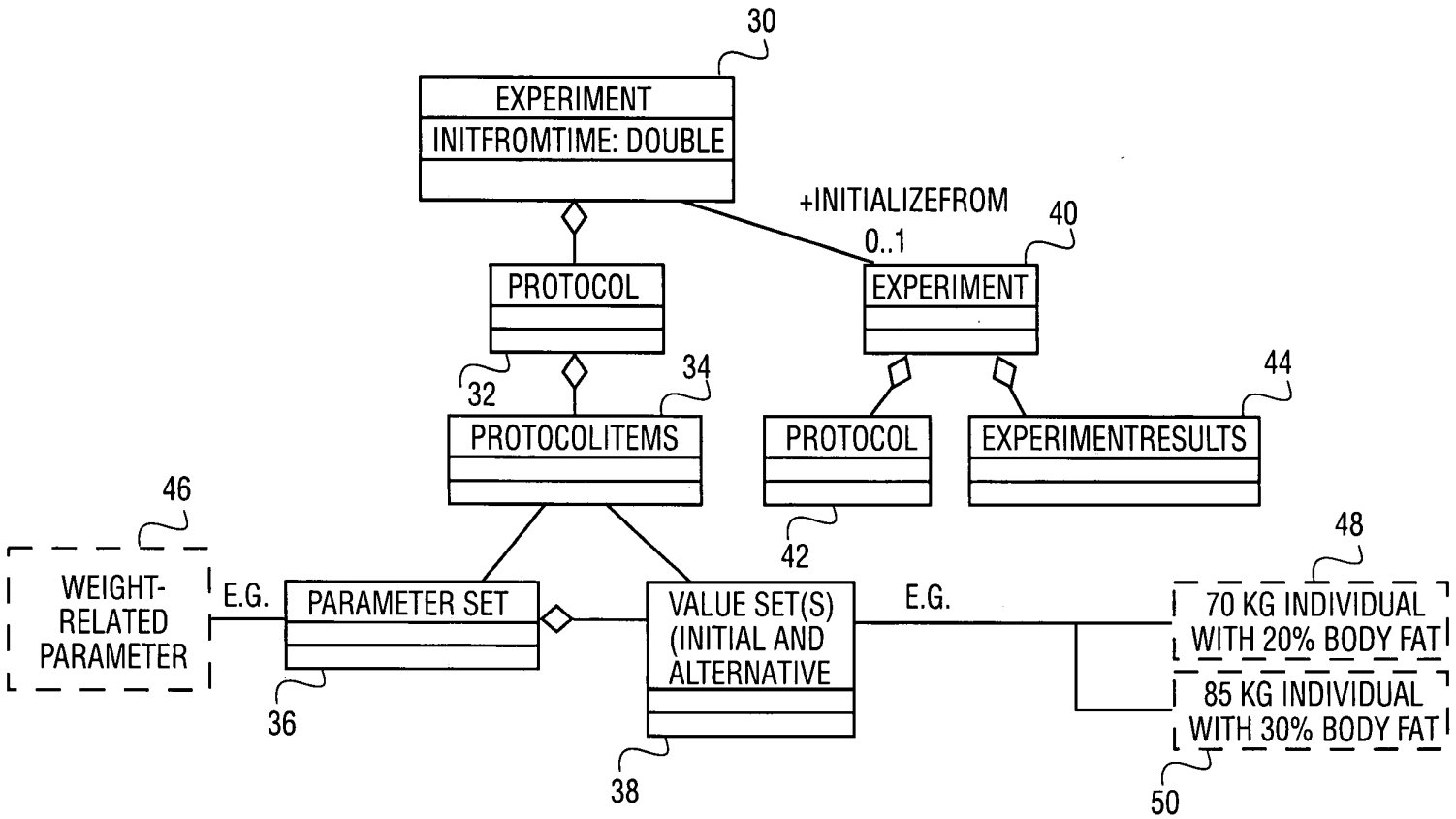

30
EXPERIMENT
INITFROMTIME: DOUBLE
+INITIALIZEFROM
0..1
40
PROTOCOL
EXPERIMENT
32
34
44
PROTOCOLITEMS
PROTOCOL
EXPERIMENTRESULTS
46
42
48
WEIGHT-
RELATED
PARAMETER
E.G.
PARAMETER SET
VALUE SET(S)
(INITIAL AND
ALTERNATIVE
E.G.
70 KG INDIVIDUAL
WITH 20% BODY FAT
85 KG INDIVIDUAL
WITH 30% BODY FAT
36
38
50

FIG. 2

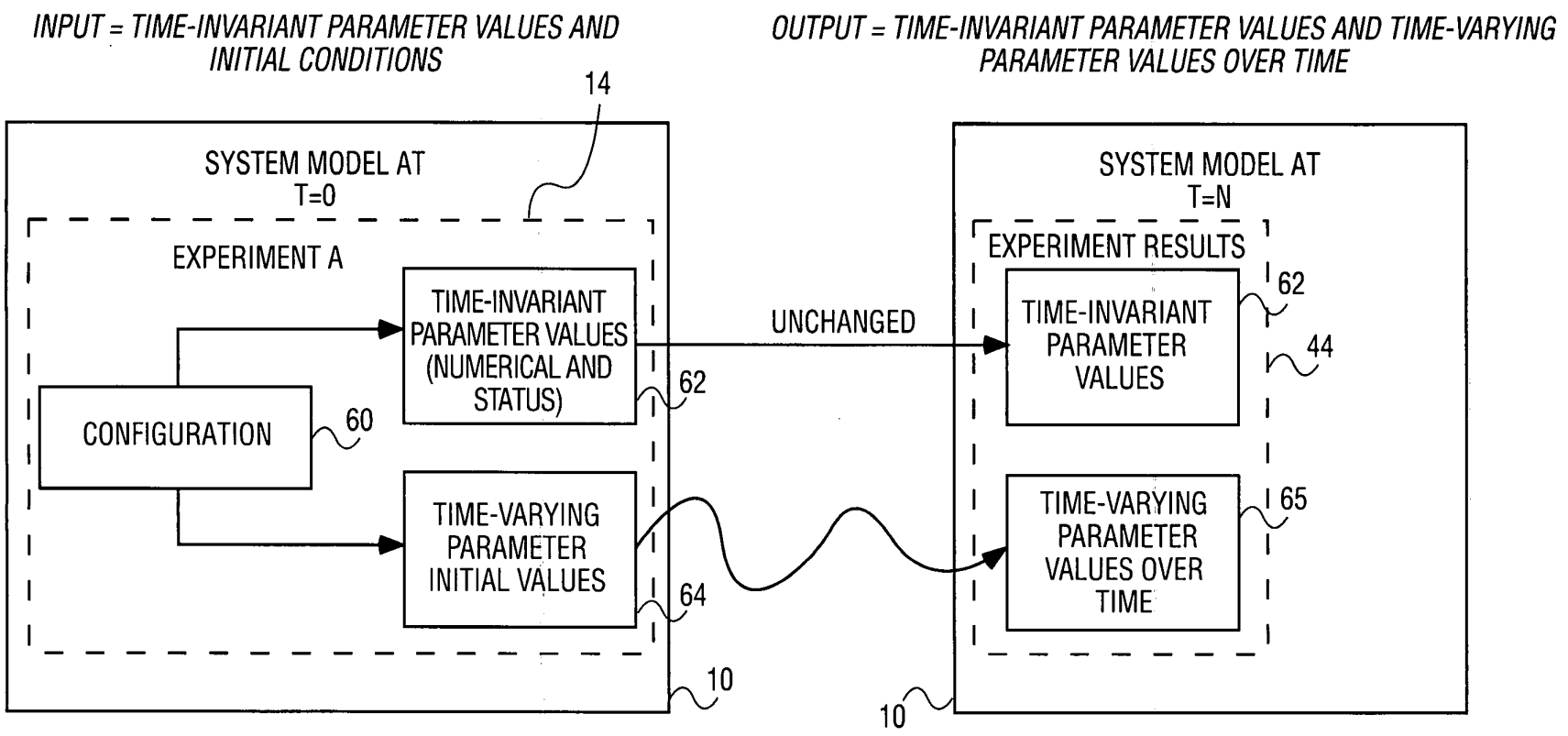


FIG. 3

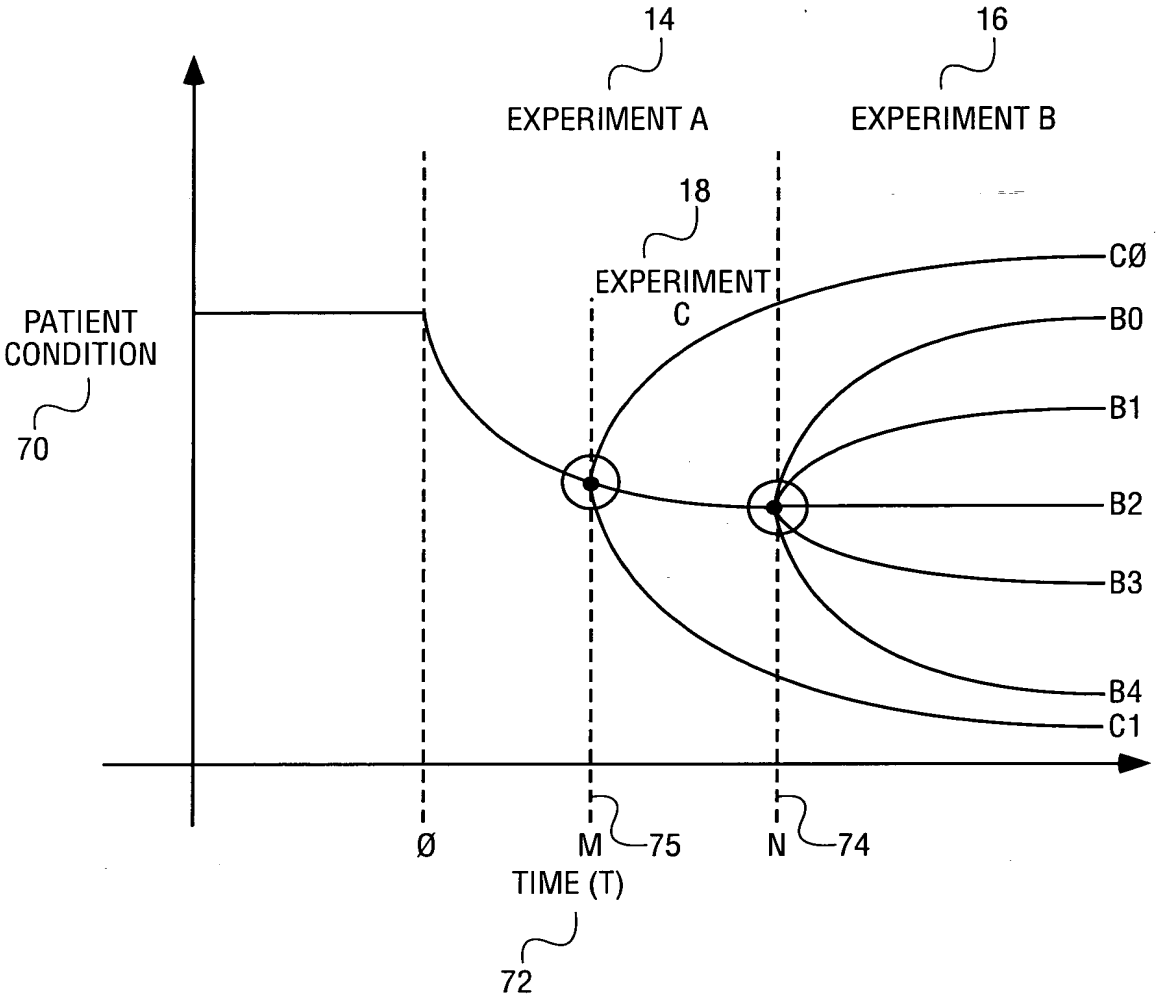

14
16
EXPERIMENT A
EXPERIMENT B
18
EXPERIMENT C
PATIENT CONDITION
70
CØ
B0
B1
B2
B3
B4
C1
Ø
M
75
N
74
TIME (T)
72

FIG. 4

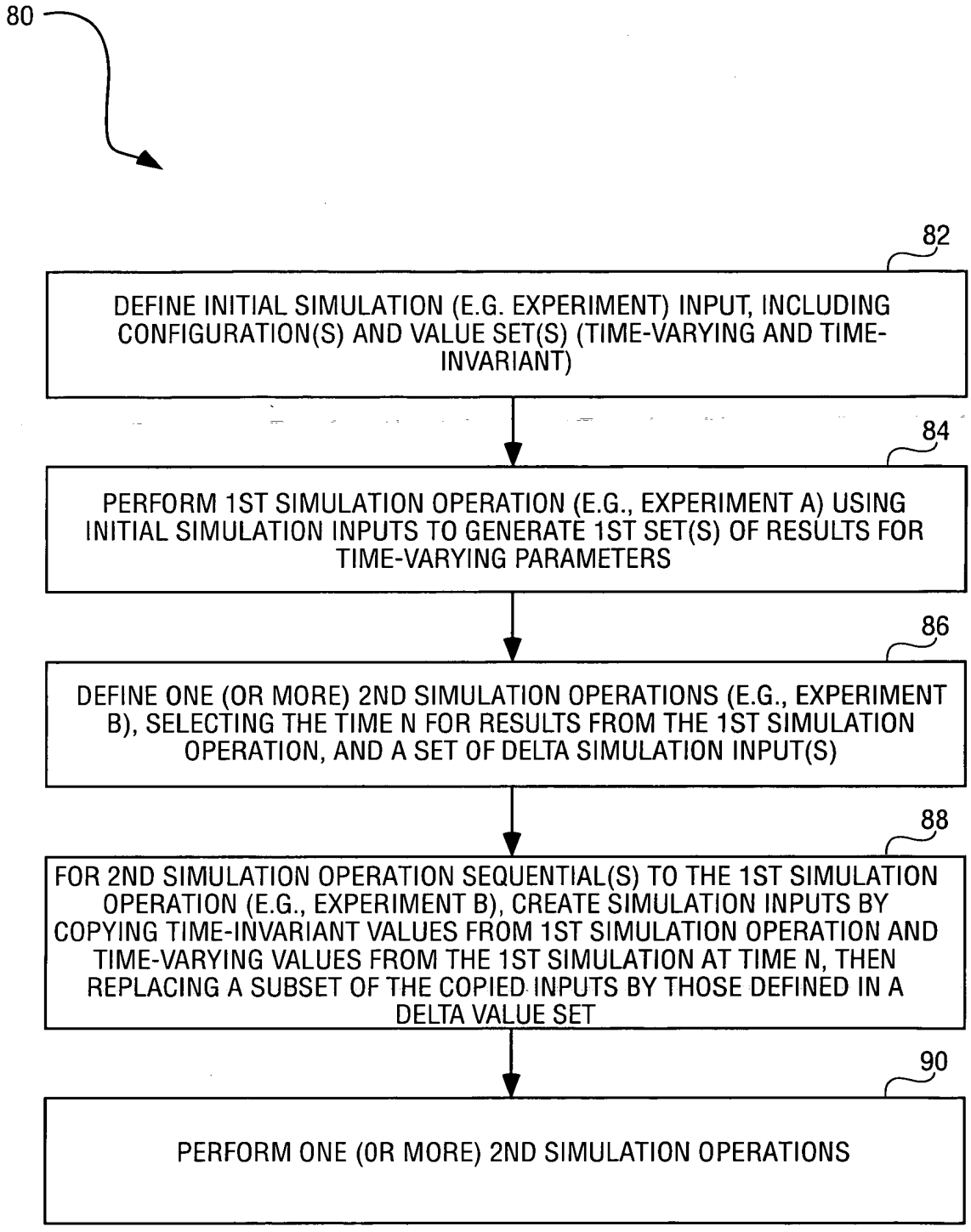

80
82
DEFINE INITIAL SIMULATION (E.G. EXPERIMENT) INPUT, INCLUDING CONFIGURATION(S) AND VALUE SET(S) (TIME-VARYING AND TIME-INVARIANT)
84
PERFORM 1ST SIMULATION OPERATION (E.G., EXPERIMENT A) USING INITIAL SIMULATION INPUTS TO GENERATE 1ST SET(S) OF RESULTS FOR TIME-VARYING PARAMETERS
86
DEFINE ONE (OR MORE) 2ND SIMULATION OPERATIONS (E.G., EXPERIMENT B), SELECTING THE TIME N FOR RESULTS FROM THE 1ST SIMULATION OPERATION, AND A SET OF DELTA SIMULATION INPUT(S)
88
FOR 2ND SIMULATION OPERATION SEQUENTIAL(S) TO THE 1ST SIMULATION OPERATION (E.G., EXPERIMENT B), CREATE SIMULATION INPUTS BY COPYING TIME-INVARIANT VALUES FROM 1ST SIMULATION OPERATION AND TIME-VARYING VALUES FROM THE 1ST SIMULATION AT TIME N, THEN REPLACING A SUBSET OF THE COPIED INPUTS BY THOSE DEFINED IN A DELTA VALUE SET
90
PERFORM ONE (0R MORE) 2ND SIMULATION OPERATIONS

FIG. 5

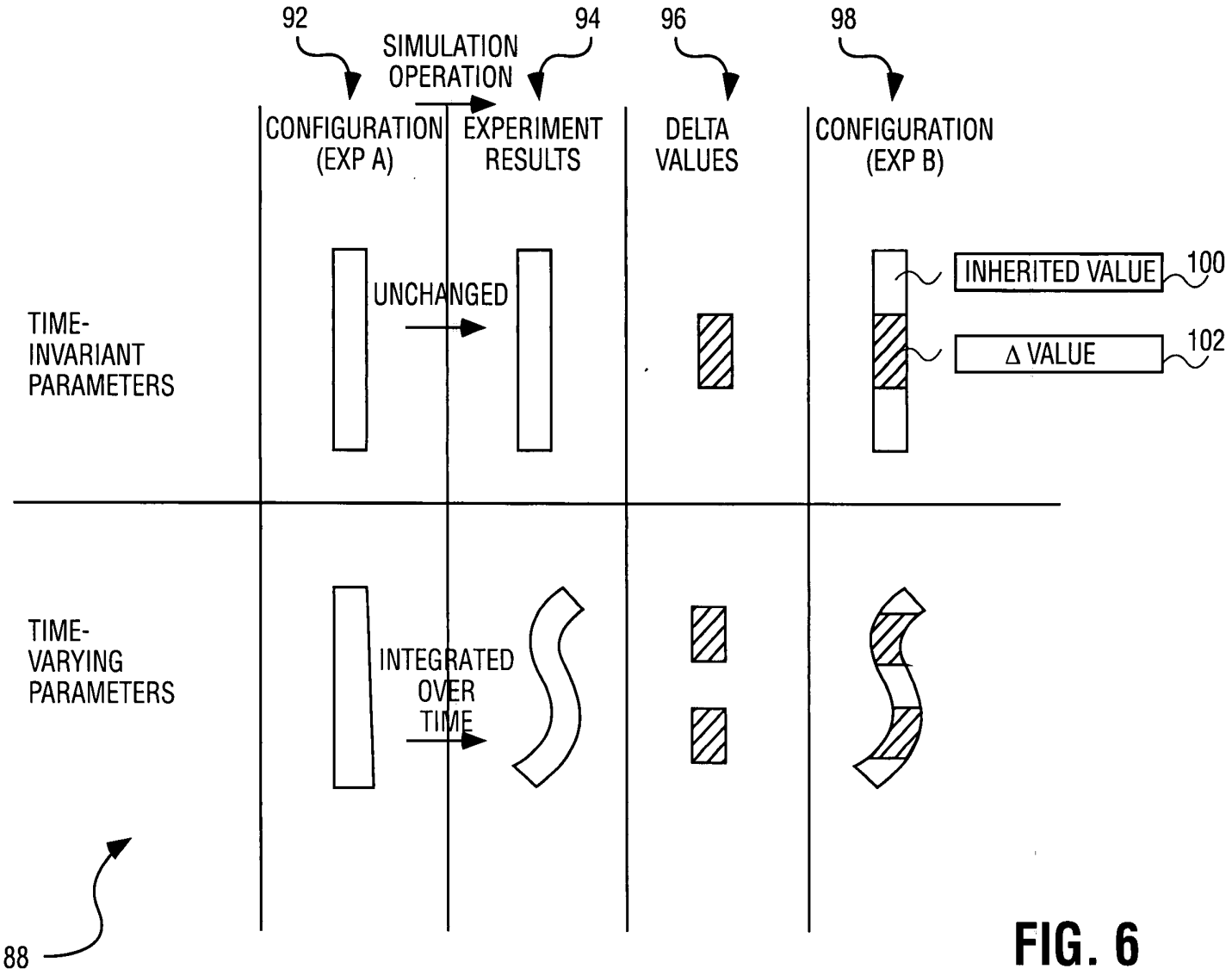

92
94
96
98
SIMULATION OPERATION
CONFIGURATION (EXP A)
EXPERIMENT RESULTS
DELTA VALUES
CONFIGURATION (EXP B)
TIME-INVARIANT PARAMETERS
UNCHANGED
INHERITED VALUE
100
Δ VALUE
102
TIME-VARYING PARAMETERS
INTEGRATED OVER TIME
88

FIG. 6

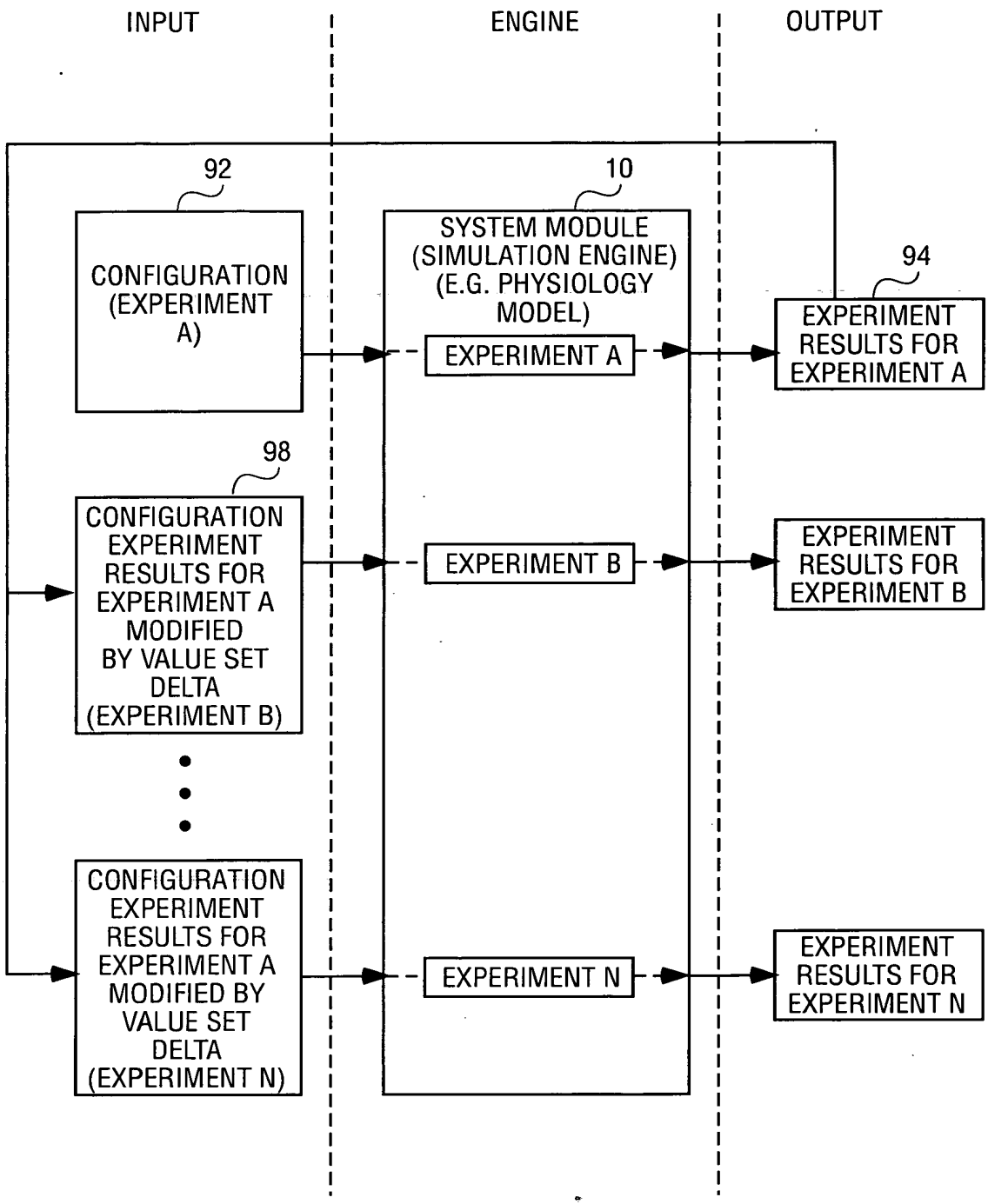

INPUT
ENGINE
OUTPUT
92
10
94
CONFIGURATION (EXPERIMENT A)
SYSTEM MODULE (SIMULATION ENGINE) (E.G. PHYSIOLOGY MODEL)
EXPERIMENT A
EXPERIMENT RESULTS FOR EXPERIMENT A
98
CONFIGURATION EXPERIMENT RESULTS FOR EXPERIMENT A MODIFIED BY VALUE SET DELTA (EXPERIMENT B)
EXPERIMENT B
EXPERIMENT RESULTS FOR EXPERIMENT B
CONFIGURATION EXPERIMENT RESULTS FOR EXPERIMENT A MODIFIED BY VALUE SET DELTA (EXPERIMENT N)
EXPERIMENT N
EXPERIMENT RESULTS FOR EXPERIMENT N

FIG. 7

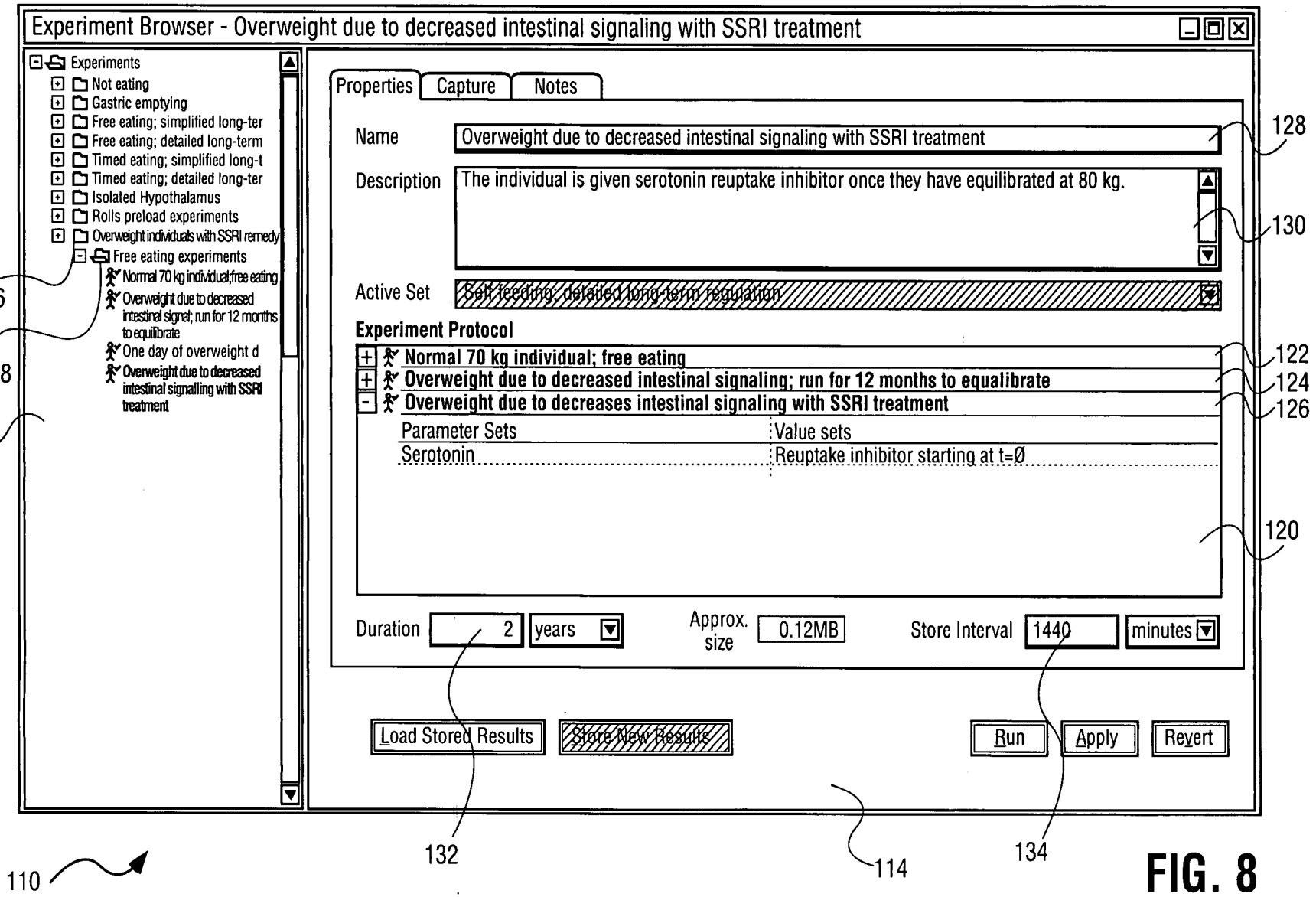
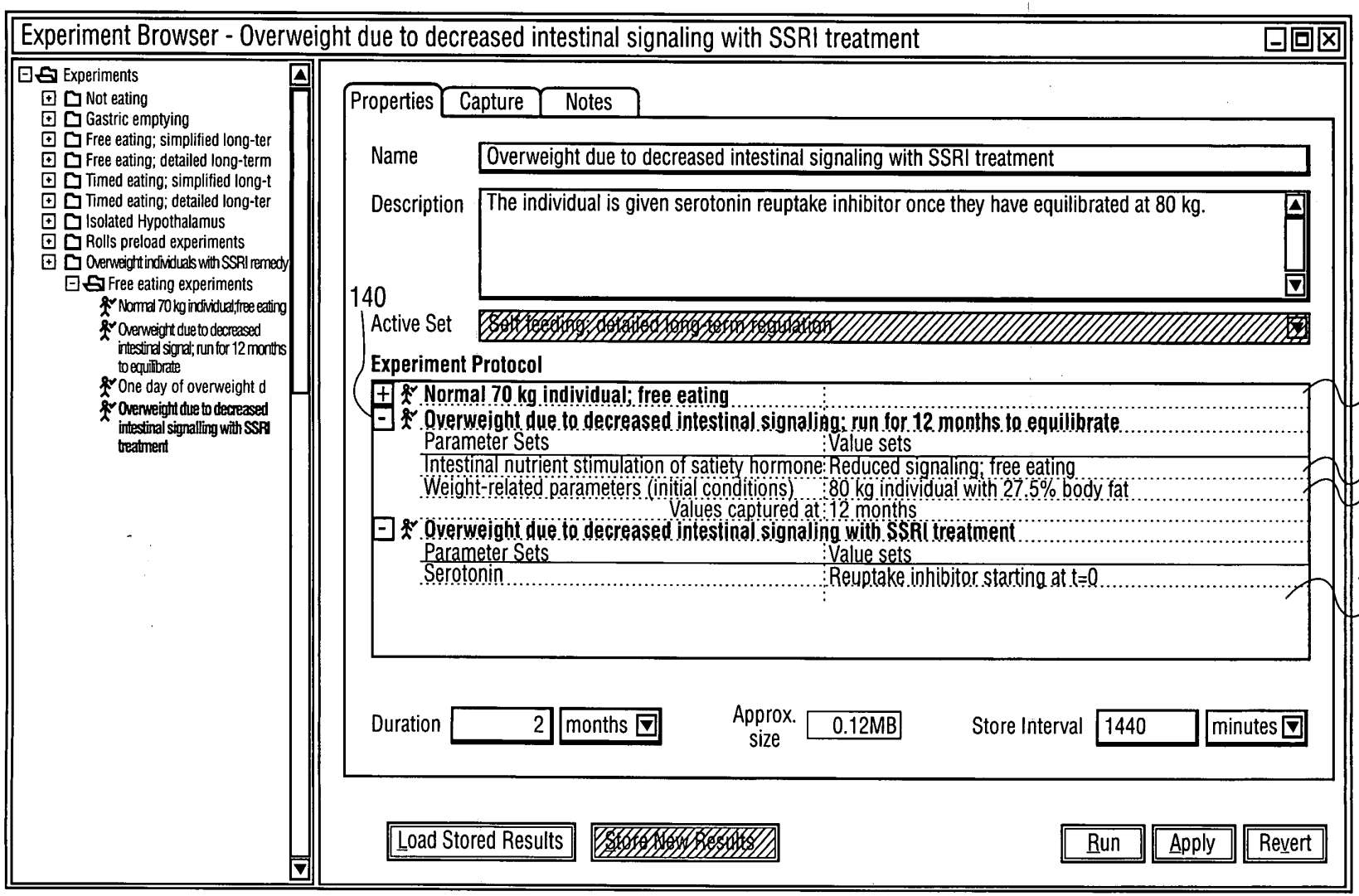


FIG. 8


Experiment Browser - Overweight due to decreased intestinal signaling with SSRI treatment
Experiments
Not eating
Gastric emptying
Free eating; simplified long-ter
Free eating; detailed long-term
Timed eating; simplified long-t
Timed eating; detailed long-ter
Isolated Hypothalamus
Rolls preload experiments
Overweight individuals with SSRI remedy
Free eating experiments
Normal 70 kg individual;free eating
Overweight due to decreased intestinal signal; run for 12 months to equilibrate
One day of overweight d
Overweight due to decreased intestinal signalling with SSRI treatment
Properties
Capture
Notes
Name
Overweight due to decreased intestinal signaling with SSRI treatment
Description
The individual is given serotonin reuptake inhibitor once they have equilibrated at 80 kg.
140
Active Set
Self feeding; detailed long-term regulation
Experiment Protocol
Normal 70 kg individual; free eating
Overweight due to decreased intestinal signaling; run for 12 months to equilibrate
Parameter Sets
Value sets
Intestinal nutrient stimulation of satiety hormone
Reduced signaling; free eating
Weight-related parameters (initial conditions)
80 kg individual with 27.5% body fat
Values captured at
12 months
Overweight due to decreased intestinal signaling with SSRI treatment
Parameter Sets
Value sets
Serotonin
Reuptake inhibitor starting at t=0
122
144
145
120
Duration
2
months
Approx. size
0.12MB
Store Interval
1440
minutes
Load Stored Results
Store New Results
Run
Apply
Revert

110

FIG. 9

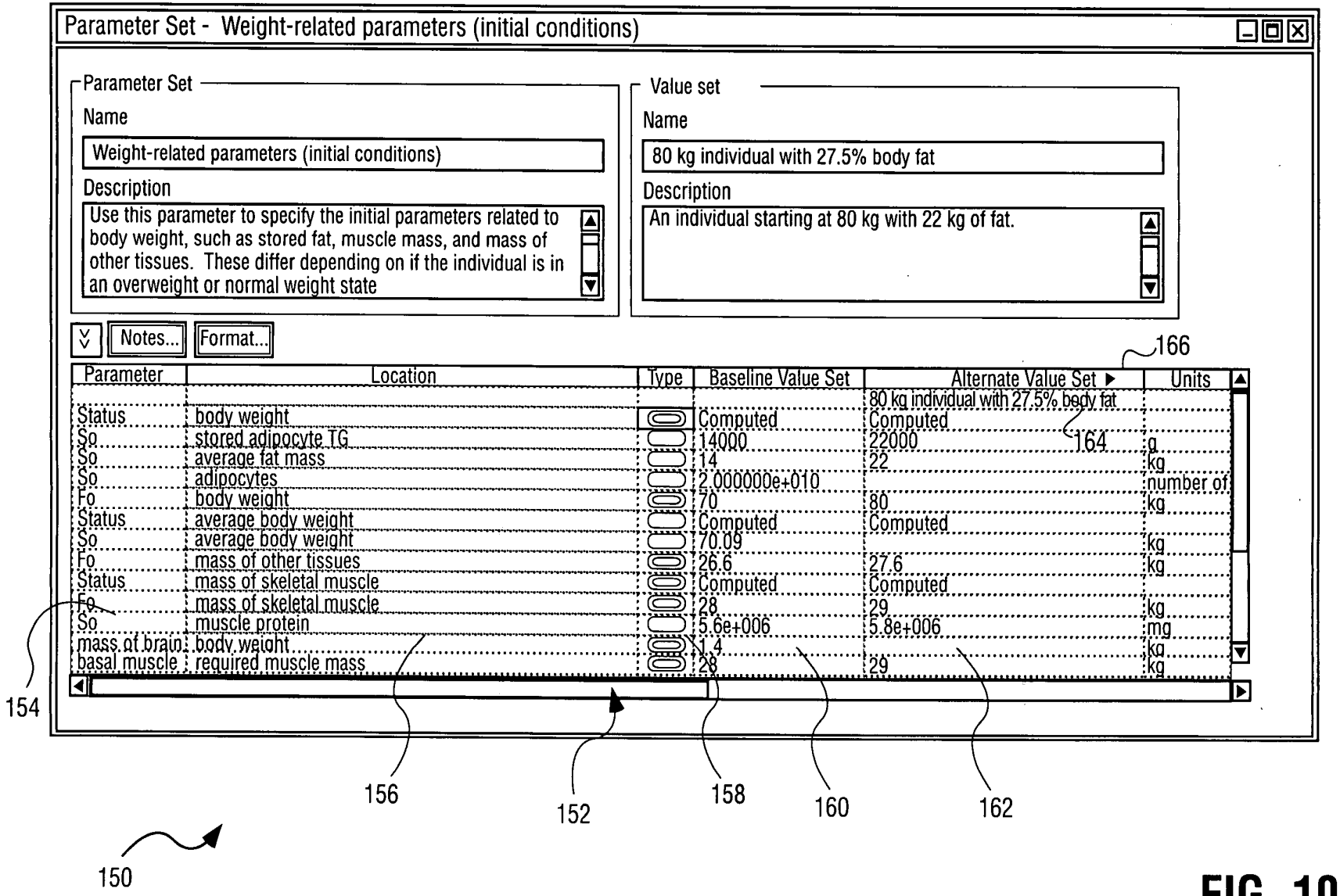

Parameter Set - Weight-related parameters (initial conditions)
Parameter Set
Name
Weight-related parameters (initial conditions)
Description
Use this parameter to specify the initial parameters related to body weight, such as stored fat, muscle mass, and mass of other tissues. These differ depending on if the individual is in an overweight or normal weight state
Value set
Name
80 kg individual with 27.5% body fat
Description
An individual starting at 80 kg with 22 kg of fat.
Notes...
Format...
166
Parameter
Location
Type
Baseline Value Set
Alternate Value Set
Units
80 kg individual with 27.5% body fat
Status body weight Computed Computed
So stored adipocyte TG 14000 22000 g
So average fat mass 14 22 kg
So adipocytes 2.000000e+010 number of
Fo body weight 70 80 kg
Status average body weight Computed Computed
So average body weight 70.09 kg
Fo mass of other tissues 26.6 27.6 kg
Status mass of skeletal muscle Computed Computed
Fo mass of skeletal muscle 28 29 kg
So muscle protein 5.6e+006 5.8e+006 mg
mass of brain body weight 1.4 kg
basal muscle required muscle mass 28 29 kg
164
154
156
152
158
160
162
150

FIG. 10

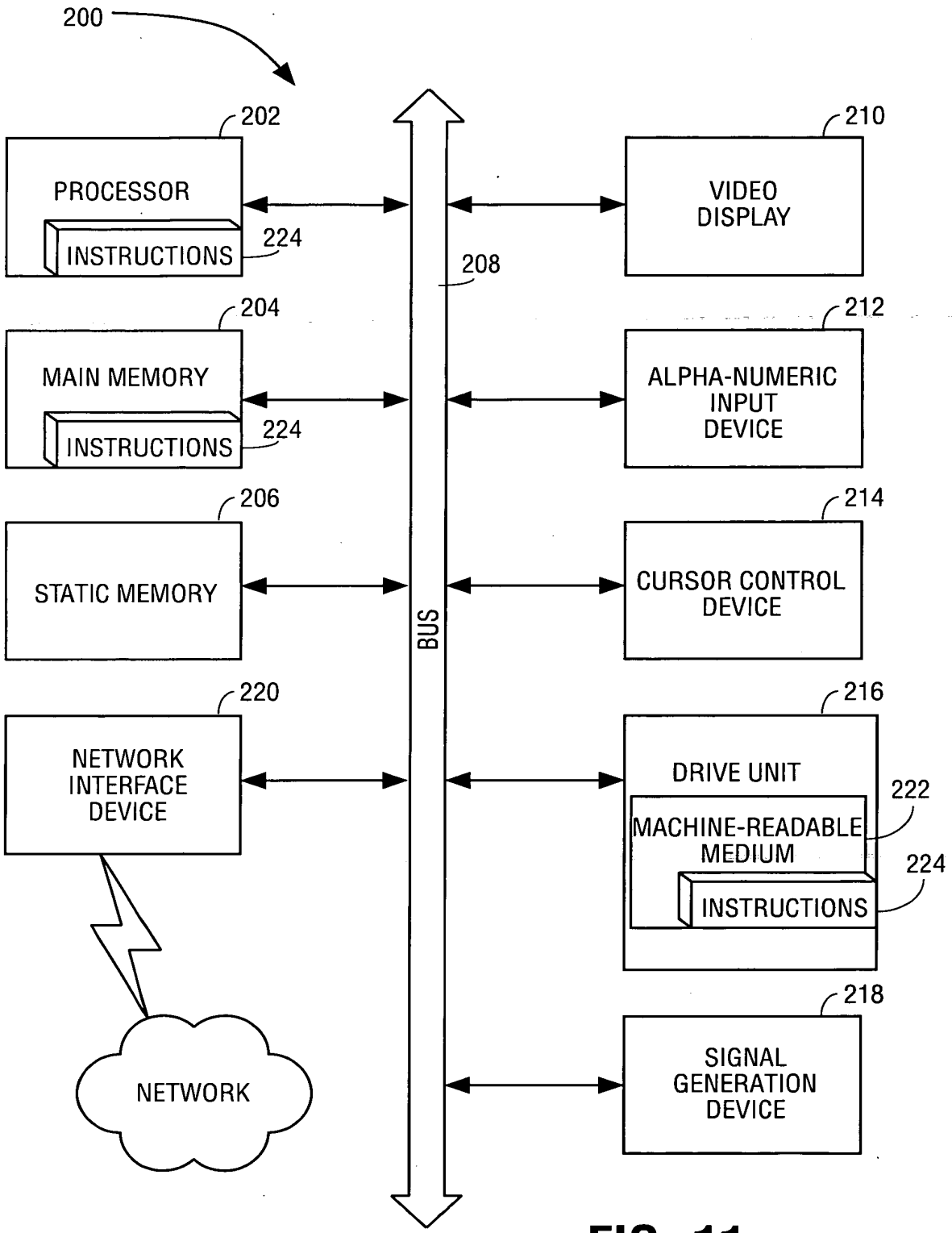

200
202
PROCESSOR
INSTRUCTIONS
224
204
MAIN MEMORY
INSTRUCTIONS
224
206
STATIC MEMORY
220
NETWORK INTERFACE DEVICE
NETWORK
BUS
208
210
VIDEO DISPLAY
212
ALPHA-NUMERIC INPUT DEVICE
214
CURSOR CONTROL DEVICE
216
DRIVE UNIT
222
MACHINE-READABLE MEDIUM
224
INSTRUCTIONS
218
SIGNAL GENERATION DEVICE

FIG. 11